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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/073,859

02/14/2002

Warren Stuart Crippen

2207/12659

6329

7590

01/09/2006

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EXAMINER

GRAYBILL, DAVID E

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/073,859

Applicant(s)

CRIPPEN, WARREN STUART

Examiner

David E. Graybill

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13,15,18,22 and 24-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13,15,18,22 and 24-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

The amendment filed 10-21-5 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The amendments to paragraphs 4; 13; 17, penultimate line; 18; 22, line 6, deletion of "dielectric," and line 9; 23; 24; 27; and 28. To further clarify, the deletion of the original disclosure comprises new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

The disclosure is objected to because in paragraph 22, the disclosure that the dielectric is silicon or poly-silicon appears to rely on inconsistent and incompatible terminology because silicon and poly-silicon are not dielectrics.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 is incomplete because it depends on canceled claim 23. See MPEP 608.01(n)V.

In the rejections *infra*, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13, 15, 18, 22 and 25-27 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Siniaguine (6882030).

At column 2, line 1 to column 4, line 58, Siniaguine discloses the following:

A microelectronic die package comprising: a microelectronic die 104 including: a die substrate 110; a layer of dielectric 140 mounted to the die substrate; and an inherently thermally conductive material 150.1 located between the die substrate and the layer of dielectric and inherently defining thermal contact zones; and an inherent heat dissipation device 420 inherently in thermal contact with the thermal contact zones to effect a dissipation of heat away from the die; wherein the die substrate defines a plurality of vias 124 therein, at least some of the thermally conductive

material being located in the vias to define the thermal contact zones; an inherent adhesion promoter 150.2 disposed between the thermally conductive material and the die substrate inherently to enhance an adhesion of the layer of thermally conductive material to the die substrate.

A microelectronic die comprising; a die substrate; a layer of dielectric mounted to the die substrate; and a thermally conductive material located between the die substrate and the layer of dielectric and inherently defining thermal contact zones adapted to be connected to a heat dissipation device to effect a dissipation of heat away from the die.

A microelectronic package comprising: a microelectronic die comprising: a die substrate; a layer of dielectric mounted to the die substrate; means 150.1 located between the die substrate and the layer of dielectric inherently for effecting a dissipation of heat away from the die; and means 420 inherently in thermal contact with the means for effecting for directing heat away from the die through the means for effecting; wherein the means for effecting comprises a layer of copper; wherein the means for directing comprises a heat dissipation device.

To further clarify, the language, "defining thermal contact zones; heat dissipation device; to effect a dissipation of heat away from the die; to define the thermal contact zones; to enhance an adhesion of the layer of thermally conductive material to the die substrate; adapted to be connected

to a heat dissipation device to effect a dissipation of heat away from the die; for effecting a dissipation of heat away from the die; and for directing heat away from the die through the means for effecting," are statements of intended use of the product that do not appear to result in a structural difference between the claimed product and the product of Siniaguine. Further, because the product of Siniaguine appears to have the same structure as the claimed product, it appears to be inherently capable of being used for the intended uses, and the statements of intended use do not patentably distinguish the claimed product from the product of Siniaguine. The manner in which a product operates is not germane to the issue of patentability of the product; Ex parte Wikdahl 10 USPQ 2d 1546, 1548 (BPAI 1989); Ex parte McCullough 7 USPQ 2d 1889, 1891 (BPAI 1988); In re Finsterwalder 168 USPQ 530 (CCPA 1971); In re Casey 152 USPQ 235, 238 (CCPA 1967). Also, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim."; Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). And, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims."; In re Young, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 136 USPQ 458, 459 (CCPA 1963)). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. In re Danley,

120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does [or is intended to do]." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Applicant's remarks filed 5-16-5 have been fully considered and are adequately addressed by the rejections *supra*.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions relevant to the examination of the instant invention.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

For information on the status of this application applicant should check PAIR: Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alternatively, applicant may contact the File Information Unit at (703) 308-2733. Telephone status inquiries should not be directed to the examiner. See MPEP 1730VIC, MPEP 203.08 and MPEP 102.

Any other telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.
The fax phone number for group 2800 is (571) 273-8300.



David E. Graybill
Primary Examiner
Art Unit 2822

D.G.
3-Jan-06

TITLE: Microelectronic Die Providing Improved Heat Dissipation and Method of Packaging Same
INVENTOR(S): Crippen
DOCKET NO.: P12659

APPROVED
DA
12-30-5

REPLACEMENT SHEET

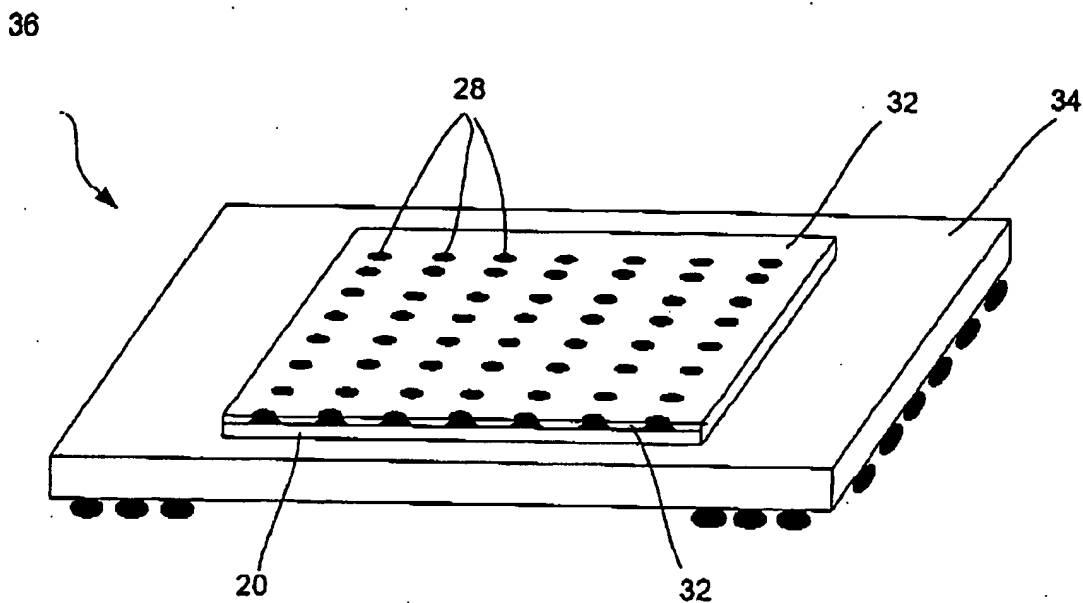


Fig. 8

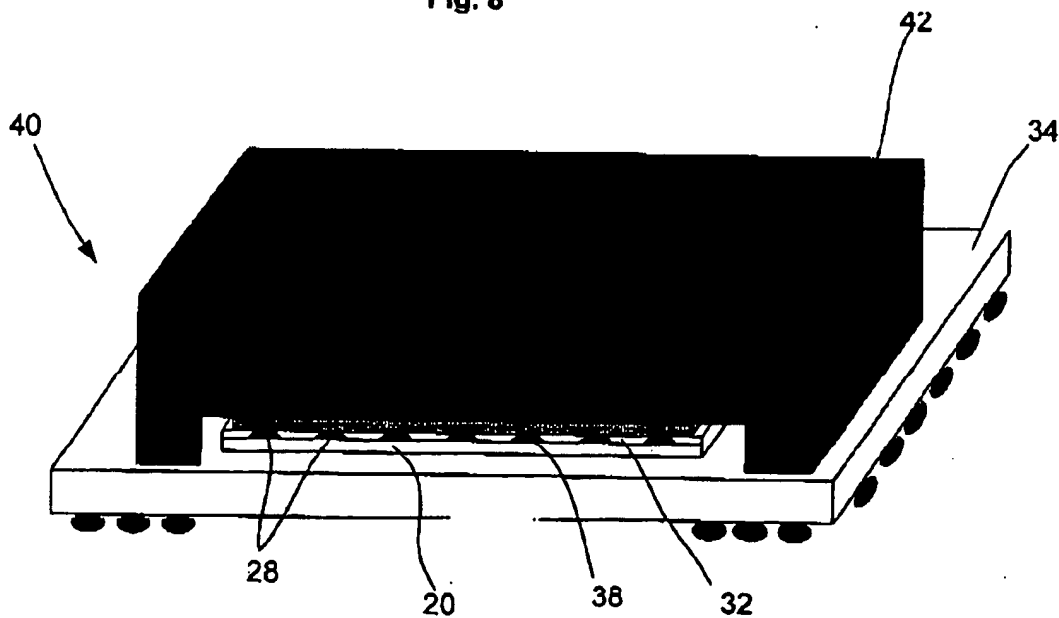


Fig. 9